ABSTRACT:

This paper presents an experimental investigation on bolted moment connections between single cold-formed channels connected back-to-back at the joints. A total of ten column-base connection tests and beam-column sub frame tests with different connection configurations were conducted to investigate the performance of the connections in term of strength and stiffness. Two modes of failure were identified from the tests; 1) Mode BFcsw: Bearing failure in section web around bolt hole. 2) Mode FFcs: Flexural failure of connected section. Among all the tests, the moment resistance of bolted moment connections with four bolts per member ranged 70 - 90 % of the moment capacities of the connected members. Consequently, it can be concluded that the use of cold-formed steel sections connected back-to-back at the joints allows simple and effective connection to be formed among cold-formed steel sections leading to improved build ability.